



To: WTC Technical Information Repository  
National Institute of Standards and Technology  
100 Bureau Drive, Stop 8610  
Gaithersburg, MD 20899-8610

Date: 1/21/03

Attention: Dr. S. Shyam Sunder

Subject: WTC 1 and 2 Documents

☒ Herewith  
☐ Under Separate Cover } We are transmitting the documents listed below  
☒ At Your Request  
☒ For Your Information and Use

Construction Audit Material Testing Reports, as per Stephen A. Cauffman's request. Please see the attached list and the Remarks on this Transmittal

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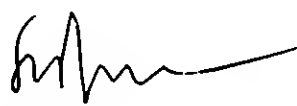
Transmitted Via:

☐ Messenger  
☐ Mail  
☒ UPS ☐ FEDEX ☐ Other:

REMARKS:

\*The testing reports for the projects in bold on the attached list are not available

\*A search is being done for the items with the suffix "a (Information as given by Tom Lynch and Joanne Ciccolello" on the attached list. These items, if available, will be transmitted later.

  
Sent by: Saroj Bhol

**PANYNJ Construction Audit Reports (Fireproofing 1-1/2 Thick)**

Page 1 of 2

Construction by PA and Tenants

**List of Construction Audit Reports Requested by NIST**

Priority	Contract/ TAA No.	Work Order No.	Tower/ Floor	Description	
*	WTC 697.00	8934	1, 79 fl	Multiple tenant floor, Material Testing Report 11/24/1999	✓
*	WTC 697.00	4691	1, 80 fl	Multiple tenant floor	
*	WTC 697.00	4676	1, 81 fl	Multiple tenant floor, Material Testing Report 7/16/1999	✓
*	WTC 697.00	4532	1, 81 fl	Multiple tenant floor, Material Testing Report 10/24/1996	✓
*	W991169	—	1, 83 fl	Suite 8331, Material Testing Report 12/15/99	✓
*	WTC 697.00	8918	1, 85 fl	Suite 8563, Material Testing Report 8/16/1999	✓
*	WTC 697.00	8886	1, 85 fl	Multiple tenant floor, Material Testing Report 6/12/1999	✓
*	WTC 697.00	4585	1, 85 fl	Multiple tenant floor, Material Testing Report 12/24/1997	✓
*	W991206.02	—	1, 86 fl	7000, SF, Julien Studley Inc., Material Testing Report 4/3/2000	
*	WTC 697.00	4550	1, 92 fl	Full floor, Material Testing Report 4/2/1997	✓
*	WTC 697.00	4615	1, 93 fl	Full floor, Marsh and McLennan, Material Testing Report 8/28/1998	✓
*	WTC 697.00	4540	1, 94 fl	Full floor, Marsh and McLennan, Material Testing Report 12/27/1996	✓
*	WTC 697.00	4601	1, 95 fl	Full floor, Marsh and McLennan, Material Testing Report 8/24/1998	✓
*	WTC 697.00	4626	1, 96 fl	Full floor, Marsh and McLennan, Material Testing Report 10/22/1998	✓ C. 1 & 2
*	WTC 697.00	4652	1, 97 fl	Full floor, Marsh and McLennan, Material Testing Report 10/22/1998	✓ ?
*	WTC 697.00	4632	1, 98 fl	Full floor, Marsh and McLennan, Material Testing Report 11/19/1998	✓
*	WTC 697.00	4652	1, 99 fl	Full floor, Marsh and McLennan, Material Testing Report 11/20/1998	✓ ?
*	WTC 697.00	4626	1, 100 fl	Full floor, Marsh and McLennan, Material Testing Report 11/20/98	✓ ?
*	WTC 679.00	4682	1, 102 fl	Full floor, Material Testing Report 9/28/1999	✓
*	WTC 679.00	4596	2, 77 fl	Full floor, Material Testing Report 6/9/1998	✓
*	WTC 679.00	4596	2, 78 fl	Full floor, Material Testing Report 4/3/1998	✓
*	WTC 679.00	4675	2, 88 fl	Full floor, Material Testing Report 6/23/2000	✓
*	WTC 679.00	4667	2, 89 fl	Full floor, Material Testing Report 5/5/1999	✓ ?
*	WTC 679.00	4592	2, 92 fl	Full floor, Material Testing Report 2/26/1998	✓

**Confidential and Predecisional Document**

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**PANYNJ Construction Audit Reports (Fireproofing 1-1/2 Thick)**

Page 2 of 2

Construction by PA and Tenants

Priority	Contract/ TAA No.	Work Order No.	Tower/ Floor	Description
*	WTC 697.00	4697	2, 96 fl	Full floor
*	WTC 697.00	4390	2, 97 fl	Full floor
*	WTC 697.00	4632	2, 98 fl	
*	WTC 697.00	4592	2, 99 fl	Half floor, Material Testing Report 4/3/1998 <sup>a</sup>
*	WTC 697.00	4569	2, 99 fl	Half floor, Material Testing Report 7/28/1997 <sup>a</sup>
*	—	—	1, 77 fl	Approximately 10,000 rsf, 1996 <sup>a</sup>
*	—	—	1, 78 fl	Approximately 30,000 rsf, 1996 <sup>a</sup>
*	—	—	1, 81 fl	Approximately 33,000 rsf, 2001 <sup>a</sup>
*	—	—	1, 83 fl	Possible 12,111 rsf, Suite 8327, 1998 <sup>a</sup>
*	—	—	1, 85 fl	Approximately 30,000 rsf, Suite 8513, 1998 <sup>a</sup>
*	—	—	2, 86 fl	Installed by PA for NYS Dept. of Tax and Finance and WMB Holdings <sup>a</sup>
*	—	—	2, 87 fl	Installed by PA for NYS Dept. of Tax and Finance and WMB Holdings <sup>a</sup>
*	—	—	2, 93 fl	By Regus, 2001 <sup>a</sup>
*	—	—	2, 95 fl	Approximately 25,000 rsf by Fiduciary Trust, 2001 <sup>a</sup>

a. Information as given by Tom Lynch and Joanne Ciccolello on 1/31/02.

x

rec'd 1.22.03



To: **WTC Technical Information Repository  
National Institute of Standards and Technology  
100 Bureau Drive, Stop 8610  
Gaithersburg, MD 20899-8610**

Date: **1/29/03**

Attention: **Dr. S. Shyam Sunder**

Subject: **WTC 1 and 2 Documents**

☒ Herewith ☐ Under Separate Cover } We are transmitting the documents listed below ☒ At Your Request ☒ For Your Information and Use

Construction Audit Material Testing Reports:

W.O. 4626, 1/96 fl, October 22, 1998

W.O. 4652, 1/97 fl, October 22, 1998

W.O. 4652, 1/99 fl, November 20, 1998

W.O. 4626, 1/100 fl, November 20, 1998

W.O. 4667, 2/89 fl, May 5, 1999

W.O. 4592, 2/99 fl, April 3, 1998

W.O. 4569, 2/99 fl, July 28, 1997

Transmitted Via:

☐ Messenger

☐ Mail

☒ UPS ☐ FEDEX ☐ Other:

REMARKS:

Missing pages of material transmitted on 1/21/03, as requested by S. Cauffman(via 1/24/03 e.mail to S. Bhol)

Sent by:

Saroj Bhol

THE PORT AUTHORITY OF NY AND NJMEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** December 27, 1996  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 WTC - 697.00 - W.O. 4540  
**COPY TO:** C. Bognacki, T. O'Connor, Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 94<sup>th</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

<u>Location:</u>	<u>Density</u> <u>Lbs./Cu. Ft.</u>	<u>Adhesion\</u> <u>Cohesion</u> <u>Lb./Sq.Ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>16.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 WTC 94 <sup>th</sup> Floor East Beam by column 329 Bottom of truss	21.24	486	4.28
TEST AREA #2 WTC 94 <sup>th</sup> Floor North Beam by column 233 Bottom of truss	20.53	504	3.80
TEST AREA #3 WTC 94 <sup>th</sup> Floor West Beam by column 131 Top of truss	20.06	288	4.33

[Continued]

[Continued]

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II is within Port Authority Specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

*John Bullard*  
John Bullard  
Chief of Chemical/  
Environmental Testing

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THE PORT AUTHORITY OF NY AND NJMEMORANDUM

4615

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** August 28, 1998  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 Charge # W2-084-099-105-349-12  
**COPY TO:** C. Bognacki, T. O'Connor, J. Shanahan, M. Young, Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 93<sup>rd</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Date</u>	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>		<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1	7/30/98	14.25	117	1.80
1 WTC 93 <sup>rd</sup> Floor			153	
South 337	8/17/98	16.63	207	1.95
Bottom of truss				
TEST AREA #2	7/30/98	16.12	216	1.84
1 WTC 93 <sup>rd</sup> Floor				
East 233				
Bottom of truss				
TEST AREA #3	7/30/98	18.42	234	2.25
1 WTC 93 <sup>rd</sup> Floor				
North 137				
Bottom of truss				


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[Continued]

	<u>Date</u>	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>		<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #4 1 WTC 93 <sup>rd</sup> Floor South 335 Bottom of truss	8/6/98	15.10	162	1.80
TEST AREA #5 1 WTC 93 <sup>rd</sup> Floor East 239 Bottom of truss	8/6/98	17.36	180	1.89
TEST AREA #6 1 WTC 93 <sup>rd</sup> Floor West 435 Bottom of truss	8/6/98	21.32	216	2.92

The South 337 truss fireproofing was originally inspected on July 30, 1998 and found to be deficient. On August 20, 1998, a re-inspection of the same truss was performed and found to be acceptable. Results from five additional trusses inspected on the 93rd floor indicate that the applied fireproofing material, CAFCO Blaze-Shield II, meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

  
John Bullard  
Chief of Chemical/  
Environmental Testing

x

# THE PORT AUTHORITY OF NY AND NJ

## MEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** December 24, 1997  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.000 Charge No. W2 - 105.207  
**COPY TO:** C. Bognacki, E. McGinley, T. O'Connor, A. Serpe, M. Young,  
 Eng. Files


As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO - Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 85<sup>TH</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

<u>LOCATION:</u>	<u>Density</u> <u>lbs./cu.ft.</u>	<u>Adhesion/Cohesion</u> <u>lbs./sq.ft.</u>	<u>Thickness</u> <u>Inches</u>
<i>Minimum Requirements</i>	<i>15.00</i>	<i>150</i>	<i>1.50</i>
TEST AREA #1 85 <sup>th</sup> Fl. 9 <sup>th</sup> Truss from West wall	28.67	162	3.50
TEST AREA #2 85 <sup>th</sup> Fl. 5 <sup>th</sup> Truss from East wall	23.73	180	2.92
TEST AREA #3 85 <sup>th</sup> Fl 5 <sup>th</sup> Truss from N-E wall	18.59	288	2.92

The test results indicate that the applied fireproof material, CAFCO - Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

  
 John Bullard  
 Chief of Chemical/  
 Environmental Testing



WTCT-30-P

THE PORT AUTHORITY OF NY AND NJMEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** Dorian Bailey  
**DATE:** December 15, 1999  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
Contract WTC - TAA #991169  
**COPY TO:** C. Bognacki, J. Bullard, P. Ortiz, J. Shanahan, M. Young, E.F.

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied in Suite 8331, on the 83<sup>rd</sup> Floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1	16.04	259	2.19
1 WTC, Suite 8331, 83 <sup>rd</sup> Fl.			
Truss 341 North			
Bottom of truss			

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.



Dorian Bailey  
Staff Services Engineer



THE PORT AUTHORITY OF NY AND NJMEMORANDUM

WTC # 4530

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** April 2, 1997  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00  
**COPY TO:** C. Bognacki, E. McGinley, T. O'Connor, A. Serpe, M. Young,  
 Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 92<sup>nd</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".


The results are as follows:

<u>Location:</u>	<u>Density</u> <u>Lbs./Cu. Ft.</u>	<u>Adhesion\</u> <u>Cohesion</u> <u>Lb./Sq.Ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 WTC 92 <sup>nd</sup> Floor South Beam by column 331 Bottom of truss	20.33	360	3.05
TEST AREA #2 WTC 92 <sup>nd</sup> Floor East Beam by column 249 Bottom of truss	15.41	324	2.83
TEST AREA #3 WTC 92 <sup>nd</sup> Floor West Beam by column 411 Bottom of truss	18.01	360	2.78

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[Continued]

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

  
John Bullard  
Chief of Chemical/  
Environmental Testing

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**THE PORT AUTHORITY OF NY AND NJ** <sup>ISSUED FROM</sup> **MEMORANDUM**

RECEIVED

39 JUL 21 18:01

TO: Eli Moscovitz  
 FROM: Dorian Bailey  
 DATE: July 16, 1999  
 SUBJECT: World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 W.O. #4676 Charge #W02-857.090  
 COPY TO: C. Bognacki, J. Bullard, J. Shanahan, M. Young, P. Ortiz, E.F.

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 81<sup>st</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> lb./cu. ft.	<u>Adhesion/ Cohesion</u> lb./sq. ft.	<u>Thickness</u> Inches
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 1 WTC 81 <sup>st</sup> Floor Truss 349 South Bottom of truss	17.36	352	2.28
TEST AREA #2 1 WTC 81 <sup>st</sup> Floor Truss 107 North Bottom of truss	17.64	463	2.38
TEST AREA #3 1 WTC 81 <sup>st</sup> Floor Truss 233 East Bottom of truss	17.41	315	3.00

[Continued]

[Continued]

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

A handwritten signature in black ink, appearing to read 'Dorian Bailey', is written over a large, empty oval shape.

Dorian Bailey  
Staff Services Engineer

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THE PORT AUTHORITY OF NY AND NJMEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** October 24, 1996  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 WTC - 697.00 - W.O. #4532  
**COPY TO:** C. Bognacki, A. Serpe, M. Young,  
 T. O'Connor, Eng. Files


As requested, the Materials Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 81<sup>st</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

<u>Location:</u>	<u>Density</u> <u>Lbs./Cu. Ft.</u>	<u>Adhesion\</u> <u>Cohesion</u> <u>Lb./Sq.Ft.</u>	<u>Thickness</u> <u>Inches</u>
<i>Port Authority Specs. Min.</i>	16.00	150	1.50
<b>TEST AREA #1</b>	19.04	270	2.69
WTC 81 <sup>st</sup> Floor South			
Bottom of truss			

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II is within Port Authority Specifications. Therefore the Materials Division recommends the acceptance of the fireproofing material.

  
 John Bullard  
 Chief of Chemical/  
 Environmental Testing



THE PORT AUTHORITY OF NY AND NJMEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** Dorian Bailey  
**DATE:** August 16, 1999  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
Contract WTC - 697.00 W.O. #8918 Charge #W02-105.000  
**COPY TO:** C. Bognacki, J. Bullard, A. Serpe, J. Shanahan, M. Young, E.F.

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 85<sup>th</sup> floor, suite 8563, of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1	16.45	259	2.78
1WTC 85 <sup>th</sup> Floor			
Suite 8563			
Truss 119 North			
Bottom of truss			

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.



Dorian Bailey  
Staff Services Engineer





THE PORT AUTHORITY OF NY AND NJMEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** Dorian Bailey  
**DATE:** June 12, 1999  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 W.O. #8886 Charge #W2-105.492  
**COPY TO:** C. Bognacki, J. Bullard, J. Shanahan, M. Young, Eng. Files

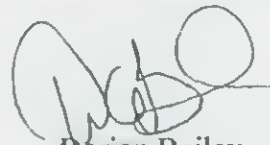
As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 85<sup>th</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1	15.78	278	2.86
1 WTC 85 <sup>th</sup> Floor			
Truss 135 South			
Bottom of truss			

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.



Dorian Bailey  
 Staff Services Engineer



WTCI-30-P

W.O. # 4626


**THE PORT AUTHORITY OF NY AND NJ      MEMORANDUM**

**TO:** Eli Moscovitz  
**FROM:** Dorian Bailey  
**DATE:** October 22, 1998  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
Contract WTC-697.00 Charge #W2-105.405  
**COPY TO:** C. Bognacki, J. Bullard, J. Shanahan, M. Young, Eng. Files

As requested, the Materials Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority Specifications. The material was applied at the 96<sup>th</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

<u>Location:</u>	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
			
TEST AREA #1 WTC 96 <sup>th</sup> Floor Beam 239 East Bottom of truss	20.52	486	3.03
TEST AREA #2 WTC 96 <sup>th</sup> Floor Beam 143 North Bottom of truss	19.83	288	3.16

(Continued)

W.O. # 4626

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(Continued)

<u>Location:</u>	<u>Density</u> <u>lb./cu. Ft.</u>	<u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<del>Minimum Requirements: Density 15 lb/cu. ft. Cohesion 300 lb/sq. ft. Thickness 3.16 inches</del>			
TEST AREA #3 WTC 96 <sup>th</sup> Floor Beam 439 West Bottom of truss	19.90	324	3.16

The test results indicate that the applied fireproof material, Cafco Blaze-Shield II, meets Port Authority specifications. Therefore the Materials Division recommends the acceptance of the fireproofing material.



Dorian Bailey  
Senior Chemist

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## WTCI-30-P

W.O. # 4652

THE PORT AUTHORITY OF NY AND NJ MEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** Dorian Bailey  
**DATE:** October 22, 1998  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
Contract WTC-697.00 Charge #W2-105.405  
**COPY TO:** C. Bognacki, J. Bullard, J. Shanahan, M. Young, Eng. Files

As requested, the Materials Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority Specifications. The material was applied at the 97<sup>th</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

<u>Location:</u>	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<del>Minimum Required: 26.51 Density, 360 Adhesion/Cohesion, 2.64 Thickness</del>			
TEST AREA #1 WTC 97 <sup>th</sup> Floor Beam 331 South Bottom of truss	26.51	360	2.64
TEST AREA #2 WTC 97 <sup>th</sup> Floor Beam 241 East Bottom of truss	20.02	468	2.17

(Continued)


2

W.D. # 4652

(Continued)

<u>Location:</u>	<u>Density</u> <u>lb./cu. Ft.</u>	<u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<del>Minimum Requirements</del>			
TEST AREA #3 WTC 97 <sup>th</sup> Floor Beam 143 North Bottom of truss	23.86	468	2.22

The test results indicate that the applied fireproof material, Casco Blaze-Shield II, meets Port Authority specifications. Therefore the Materials Division recommends the acceptance of the fireproofing material.

  
Dorian Bailey  
Senior Chemist

C:\Angelos\1wtc97

THE PORT AUTHORITY OF NY AND NJMEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** November 19, 1998  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 Charge # W2-084-099-105-405-12  
**COPY TO:** C. Bognacki, J. Shanahan, M. Young, Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 98<sup>th</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:


	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 1 WTC 98 <sup>th</sup> Floor North 113 Bottom of truss	31.34	407	2.91
TEST AREA #2 1 WTC 98 <sup>th</sup> Floor East 232 Bottom of truss	16.79	351	2.83

[Continued]

[Continued]

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<b><u>Minimum Requirements</u></b>	<b><u>15.00</u></b>	<b><u>150</u></b>	<b><u>1.50</u></b>
<b>TEST AREA #3</b>	19.65	518	2.52
1 WTC 98 <sup>th</sup> Floor			
South 325			
Bottom of truss			

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II, meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

  
 John Bullard  
 Chief of Chemical/  
 Environmental Testing

JT  
 a:\1w1c98



...

x

WTCI-30-P

W.O. # 4652

**THE PORT AUTHORITY OF NY AND NJ      MEMORANDUM**

**TO:** Eli Moscovitz  
**FROM:** Dorian Bailey  
**DATE:** November 20, 1998  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
Contract WTC - 697.00      Charge #W2-105.405  
**COPY TO:** C. Bognacki, J. Bullard, J. Shanahan, M. Young, Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 99<sup>th</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

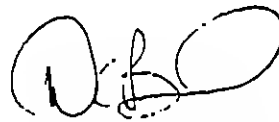
	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 1WTC 99 <sup>th</sup> Floor Truss 427 West Bottom of truss	18.79	204	2.84
TEST AREA #2 1WTC 99 <sup>th</sup> Floor Truss 339 South Bottom of truss	16.60	222	2.22

[Continued]

[Continued]

TEST AREA #3	18.38	204	2.23
1WTC 99 <sup>th</sup> Floor			
Truss 229 East			
Bottom of truss			

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.



Dorian Bailey  
Staff Services Engineer

AZ

c:\angelos\11w1299

WTCI-30-P

W.O. # 4626

**THE PORT AUTHORITY OF NY AND NJ      MEMORANDUM**

**TO:** Eli Moscovitz  
**FROM:** Dorian Bailey  
**DATE:** November 20, 1998  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00      Charge #W2-105.405  
**COPY TO:** C. Bognacki, J. Bullard, J. Shanahan, M. Young, Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 100<sup>th</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1	16.45	278	2.80
1WTC 100 <sup>th</sup> Floor			
Truss 433 West			
Bottom of truss			
TEST AREA #2	17.27	278	3.17
1WTC 100 <sup>th</sup> Floor			
Truss 337 South			
Bottom of truss			

[Continued]

2

W.O. #4626

[Continued]

TEST AREA #3	19.90	333	3.38
1WTC 100 <sup>th</sup> Floor			
Truss 153 North			
Bottom of truss			

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

  
Dorian Bailey  
Staff Services Engineer

AZ

c:\angelos\1wtc100

THE PORT AUTHORITY OF NY AND NJMEMORANDUM

WTC #1 4601

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** August 24, 1998  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 Charge # W2-084-099-105-324-12  
**COPY TO:** C. Bognacki, R. Levine, T. O'Connor, J. Shanahan, M. Young,  
 Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 95<sup>th</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 1 WTC 95 <sup>th</sup> Floor South 329 Bottom of truss	17.96	270	2.16
TEST AREA #2 1 WTC 95 <sup>th</sup> Floor East 235 Bottom of truss	20.09	306	2.41
TEST AREA #3 1 WTC 95 <sup>th</sup> Floor West 429 Bottom of truss	20.42	198	3.30

[Continued]

[Continued]

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II, meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.



John Bullard  
Chief of Chemical/  
Environmental Testing





THE PORT AUTHORITY OF NY AND NJMEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** Dorian Bailey  
**DATE:** September 28, 1999  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 W.O. #4682 Charge #W02-857090  
**COPY TO:** C. Bognacki, J. Bullard, P. Ortiz, J. Shanahan, M. Young, E.F.

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 102<sup>nd</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".


The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 1WTC 102 <sup>nd</sup> Floor Truss 131 North Bottom of truss	16.47	333	3.25
TEST AREA #2 1WTC 102 <sup>nd</sup> Floor Truss 231 East Bottom of truss	16.87	333	3.25
TEST AREA #3 1WTC 102 <sup>nd</sup> Floor Truss 313 South Bottom of truss	15.93	315	2.11

{Continued}

{Continued}

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

A handwritten signature in black ink, appearing to read 'D. Bailey', with a large, sweeping loop at the end.

Dorian Bailey  
Staff Services Engineer



THE PORT AUTHORITY OF NY AND NJ MEMORANDUM

4596

RECEIVED

4596

TO: Eli Moscovitz  
 FROM: John Bullard  
 DATE: June 9, 1998  
 SUBJECT: World Trade Center: Test of Fire Resistant Material  
 Contract WTC - 697.00 Charge #W084-105.265  
 COPY TO: C. Bognacki, T. O'Connor, A. Serpe, J. Shanahan,  
 Eng. Files

38 JUN 12 3:34

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 77<sup>th</sup> floor of WTC #2.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".


The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 2WTC 77 <sup>th</sup> Floor East 121 Bottom of truss	19.39	351	2.67
TEST AREA #2 2WTC 77 <sup>th</sup> Floor West 353 Bottom of truss	19.35	198	2.11
TEST AREA #3 2WTC 77 <sup>th</sup> Floor West 303 Bottom of truss	17.24	297	2.60

[Continued]

[Continued]

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

  
John Bullard  
Chief of Chemical/  
Environmental Testing

JT  
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THE PORT AUTHORITY OF NY AND NJMEMORANDUM

TO: Edward McGinley  
FROM: Dorian Bailey  
DATE: November 24, 1999  
SUBJECT: World Trade Center: Test of Fire Resistive Material  
Contract WTC - 697.00 W.O. #8934 Charge #W02-600.216  
COPY TO: C. Bognacki, J. Bullard, P. Ortiz, J. Shanahan, M. Young, E.F.

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 79<sup>th</sup> floor of WTC #1.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 1 WTC 79 <sup>th</sup> Floor Truss 433 West Bottom of truss	16.64	333	2.36

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.



Dorian Bailey  
Staff Services Engineer

THE PORT AUTHORITY OF NY AND NJMEMORANDUM

TO: Eli Moscovitz  
 FROM: John Bullard  
 DATE: April 3, 1998  
 SUBJECT: World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 Charge #W2-105.256  
 COPY TO: C. Bognacki, E. McGinley, T. O'Connor, A. Serpe, J. Shanahan,  
 Eng. Files

*Anita*

*WO#4596*

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 78<sup>th</sup> floor of WTC #2.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:


	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 2WTC 78 <sup>th</sup> Floor East 327 Bottom of truss	17.00	288	2.50
TEST AREA #2 2WTC 78 <sup>th</sup> Floor West 157 Bottom of truss	18.10	270	2.75

[Continued]



[Continued]

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

  
John Bullard  
Chief of Chemical/  
Environmental Testing

AZ

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THE PORT AUTHORITY OF NY &amp; NJ



## MATERIALS ENGINEERING DIVISION

## MEMORANDUM

To: Eli Moscovitz

05-Jul-00

From:  Donian BaileyRe: WTC: Test of Fire Resistive Material at 2 WTC/88th Floor, Contract WTC -697.00,  
Charge Code W02-115.925 W.O. #4675

cc: J. Bullard, C. Bognacki, A. Serpe, J. Shanahan, M. Young, EF

As requested, the Materials Engineering Division has tested the application of sprayed-on fireproofing, CAFCO Blaze Shield II, for conformance to Port Authority Specifications. Testing was performed on 6/23/00, in accordance with ASTM E-605, "Thickness and Density," and ASTM E-736, "Adhesion/Cohesion of Sprayed Fire Resistive Materials Applied to Structural Steel Members."

The results are as follows:

Sample No.	Sample Description	Density, lb/ft <sup>3</sup>	Adhesion/ Cohesion, lb/ft <sup>2</sup>	Thickness, Inches
	<i>Minimum Requirements:</i>	<i>15</i>	<i>150</i>	<i>1.50</i>
E8067	Beam 213 North	18	167	1.89
E8068	Beam 157 West	16	333	2.36
E8069	Beam 315 East	15	157	2.13

The results indicate that the applied low density fireproof material meets PA specifications.

Please feel free to contact me on (201) 216-2963 if there are any questions concerning these results.



WTCI-30-P

W.O. # 4667

**THE PORT AUTHORITY OF NY AND NJ      MEMORANDUM**

**TO:** Eli Moscovitz  
**FROM:** Dorian Bailey  
**DATE:** May 5, 1999  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 - W.O. #4667 - Charge #W2-105.508  
**COPY TO:** C. Bognacki, J. Bullard, J. Shanahan, M. Young, Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 89<sup>th</sup> floor of WTC #2.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<b><u>Minimum Requirements</u></b>	<b><u>15.00</u></b>	<b><u>150</u></b>	<b><u>1.50</u></b>
<b>TEST AREA #1</b>	<b>22.42</b>	<b>370</b>	<b>2.80</b>
2WTC 89 <sup>th</sup> Floor			
Truss 329 East			
Bottom of truss			
<b>TEST AREA #2</b>	<b>15.75</b>	<b>333</b>	<b>2.70</b>
2WTC 89 <sup>th</sup> Floor			
Truss 231 North			
Bottom of truss			

[Continued]

[Continued]

TEST AREA #3	15.34	270	2.95
2WTC 89 <sup>th</sup> Floor			
Truss 127 West			
Bottom of truss			

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.



Dorian Bailey  
Staff Services Engineer

AZ

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THE PORT AUTHORITY OF NY AND NJMEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** February 26, 1998  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 W.O. #4592 Charge #W2-105.256  
**COPY TO:** C. Bognacki, T. O'Connor, A. Serpe, J. Shanahan, M. Young,  
 Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 92<sup>nd</sup> floor of WTC #2.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

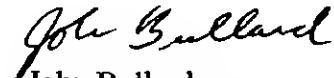
The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion /</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 2WTC 92 <sup>nd</sup> Floor Truss 335 East Bottom of truss	19.70	342	2.83
TEST AREA #2 2WTC 92 <sup>nd</sup> Floor Truss 421 South Bottom of truss	21.09	360	3.00
TEST AREA #3 2WTC 92 <sup>nd</sup> Floor Truss 127 West Bottom of truss	19.73	297	2.67

[Continued]

[Continued]

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.

  
John Bullard  
Chief of Chemical/  
Environmental Testing

AZ

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WTCI-30-P

W.O. # 4569

THE PORT AUTHORITY OF NY AND NJMEMORANDUM

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** July 28, 1997  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
 Contract WTC - 697.00 Charge #W2-105.256  
**COPY TO:** C. Bognacki, E. McGinley, T. O'Connor, A. Serpe, M. Young,  
 Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 99<sup>th</sup> floor of WTC #2.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion\</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 2WTC 99 <sup>th</sup> Floor West 43 Bottom of truss	19.53	315	2.10
TEST AREA #2 2WTC 99 <sup>th</sup> Floor West 9 Bottom of truss	22.71	252	3.05

[Continued]

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The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.



John Bullard  
Chief of Chemical/  
Environmental Testing

AZ

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WTCI-30-P

W.O. # 4592

**THE PORT AUTHORITY OF NY AND NJ      MEMORANDUM**

**TO:** Eli Moscovitz  
**FROM:** John Bullard  
**DATE:** April 3, 1998  
**SUBJECT:** World Trade Center: Test of Fire Resistive Material  
Contract WTC - 697.00 Charge #W2-105.256  
**COPY TO:** C. Bognacki, E. McGinley, T. O'Connor, A. Serpe, J. Shanahan,  
Eng. Files

As requested, the Materials Engineering Division has tested the application of the sprayed-on fireproofing, CAFCO Blaze-Shield II for conformance to Port Authority specifications. The material was applied at the 99<sup>th</sup> floor of WTC #2.

The tests were performed in accordance with ASTM E-605, "Thickness and Density" and ASTM E-736 "Adhesion/Cohesion" of Sprayed Fire Resistive Materials Applied to Structural Steel Members".

The results are as follows:

	<u>Density</u> <u>lb./cu. ft.</u>	<u>Adhesion/</u> <u>Cohesion</u> <u>lb./sq. ft.</u>	<u>Thickness</u> <u>Inches</u>
<u>Minimum Requirements</u>	<u>15.00</u>	<u>150</u>	<u>1.50</u>
TEST AREA #1 2WTC 99 <sup>th</sup> Floor North 243 Bottom of truss	21.88	306	1.80
TEST AREA #2 2WTC 99 <sup>th</sup> Floor East 349 Bottom of truss	19.48	270	1.73

[Continued]

[Continued]

The test results indicate that the applied fireproof material, CAFCO Blaze-Shield II meets Port Authority specifications. Therefore the Materials Engineering Division recommends the acceptance of the fireproofing material.



John Bullard  
Chief of Chemical/  
Environmental Testing

AZ

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<u>Lower</u>	<u>Floor No.</u>	<u>Specific Location/Square Footage/Tenant</u>	<u>Contract/TAA No.</u>	<u>Applicable Work Order No.</u>	<u>Material Testing Report</u>	
	1	79	Multiple tenant floor	WTC-697.00	8934	11/24/1999
	1	80	Multiple tenant floor	WTC-697.00	4691	?
	1	81	Multiple tenant floor	WTC-697.00	4676	07/16/1999
	1	81	Multiple tenant floor	WTC-697.00	4532	10/24/1996
	1	83	Suite 8331	W-991169		12/15/1999
	1	85/	Suite 8563	WTC-697.00	8918	08/16/1999
	1	85	Multiple tenant floor	WTC-697.00	8886	06/12/1999
	1	85	Multiple tenant floor	WTC-697.00	4585	12/24/1997
	1	86	7000, SF, Julien Studley Inc.	W-991206.02		04/03/2000
	1	92	Full Floor	WTC-697.00	4550	04/02/1997
	1	93	Full Floor, Marsh and McLennan	WTC-697.00	4615	08/28/1998
	1	94	Full Floor, Marsh and McLennan	WTC-697.00	4540	12/27/1996
	1	95	Full Floor, Marsh and McLennan	WTC-697.00	4601	08/24/1998
	1	96	Full Floor, Marsh and McLennan	WTC-697.00	4626	10/22/1998
	1	97	Full Floor, Marsh and McLennan	WTC-697.00	4652	10/22/1998
	1	98	Full Floor, Marsh and McLennan	WTC-697.00	4632	11/19/1998
	1	99	Full Floor, Marsh and McLennan	WTC-697.00	4652	11/20/1998
	1	100	Full Floor, Marsh and McLennan	WTC-697.00	4 626	11/20/1998
	1	102	Full Floor	WTC-679.00	4682	09/28/1999
2	77	Full Floor	WTC-697.00	4596		06/09/1998
2	78	Full Floor	WTC-697.00	4596		04/03/1998
2	88	Full Floor	WTC-697.00	4675		06/23/2000
2	89	Full Floor	WTC-697.00	4667		05/05/1999
2	92	Full Floor	WTC-697.00	4592		02/26/1998
2	96	Full Floor	WTC-697.00	4697		?
2	92	Full Floor	WTC-697.00	4390		?
2	96	?	WTC-697.00	4632		?
2	99	Half Floor	WTC-697.00	4592		04/03/1998
2	99	Half Floor	WTC-697.00	4569		07/28/1997

Monica said  
to request  
all of these  
Cheri 1-6-03  
The # indicate  
priority

from John Gross

AKA "Construction Audit Reports"

January 31, 2002

~~RECEIVED~~

Cheri 12/10/02

January 31, 2002